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| EXAMINER | |
|---|---|
| BAYOU, AMENE SETEGNE | |
| ART UNIT | PAPER NUMBER |
| 3746 | |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/574,858 | NAKANO ET AL. | |
| | Examiner | Art Unit | |
| | AMENE S. BAYOU | 3746 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *22 July 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) *19-21* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 April 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election with traverse of Group I in the reply filed on 07/22/09 is acknowledged. The traversal is on the ground(s) that a search of both groups would not place significant burden on the examiner. This is not found persuasive because a hermetic compressor with a foamed formed part is significantly different than the method of molding the part and both inventions have separate classification, the apparatus in class 417 and the method in class 264.

The requirement is still deemed proper and is therefore made FINAL.

Claims 19-20 and 21 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a non-elected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 07/22/09.

### *Drawings*

2. Figures 17-20 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 5 and 7-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 recites "a plate thickness". The specification recites "valve plate" and also "plate thickness of wall of suction muffler" and it is not clear which plate thickness is referred to in the claim limitation.

Claim 7 recites, "the maximum projection area is obtained is thicker than plate thickness of the other plate thickness". The term, "maximum projection area" lacks antecedent basis and it is not clear what this claim is trying to convey.

Claim 8 recites, "a maximum projection area", it is not clear to the examiner what is intended by this limitation.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that forms the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being unpatentable over Inform Industries European Edition 2, 2009 (IIEE) as evidenced by Adcock (4446853).

7. In re claim 1, IIEE on page 3 discloses that Refrigerant compressors manufactured by Electrolux have mufflers made from Celanex 3300 plastic since the beginnings of 2001.Adcock stated that Celanex 3300 is foamed plastic (column 9,lines 25-28).

8. In re claim 3 IIEE on page 3 disclosed that the foamed plastic is PBT (synthetic resin).

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 1-9,12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wada et al (5304044) in view of Haseyama (6849667) or Miller (5272285) or Arai (7107601).

11. In re claim 1 Wada et al teach a **hermetic compressor (figure 1)** including a **motor element (2)** ,a **compression element (6)** driven by the **motor element (2)** ,and a **suction muffler (23)** made of **synthetic resin (column 4,lines 30-32),** which is linked to the **compression element (6)**.

Wada et al lacks the teaching of the casing of the suction muffler being foam molded.

Haseyma et al teach that **foamed plastic** can be used in vehicle parts for thermal insulation, vibration and sound dampening purposes **(column 33,lines 1-30 and column 43,line 26-27)**.

Miller teaches that **compressor housing (16)** can be made from **foamed plastic** to dampen noise **(column 3, lines 33-40)**.

Arai teach foam molded resin that can be used to make heat resistant mechanical parts.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have made the housing of the suction muffler of Wada from foam molding as taught by Haseyama or Miller or Arai merely to produce a muffler with good heat or sound insulating properties.

In re claim 2 Haseyma et al teach that the sizes of the cells of the foamed plastic (bubble diameter) is less than (column 45, line 36). It would have been a matter of design choice to choose the bubble size of the foam molded part based on the desired heat insulation properties, strength needed and insulation properties desired. Arai teaches a similar arrangement (Col. 15 lines 42-45)

In re claim 3 Wada et al teach that the material of the foam molding is **synthetic resin (column 4,lines 30-32).**See also claim 12 of Haseyama.

In re claim 4, Arai teaches a skin layer (figure 6) in which a bubble does not exist formed on the surface of the foam molding.

In re claim 5, Arai's figure 6 shows a skin layer with a thickness that is 30 percent or less of a plate thickness.

In re claim 6, both Haseyama and Arai are silent to the foaming magnification in their foams. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to choose the proper foaming magnification to meet the required level of acoustic or thermal insulation since foaming magnification is directly related to

cell density and is defined as the ratio of volume density when being unfoamed relative to the volume density when being foamed. Thus one skilled in the art would have chosen the proper magnification to get a low density foam without compromising toughness or other mechanical property of the plastic (See for example US patent 6051174 to Park et al column 2,lines 42-column 3,line 15).

In re claims 7-9, Figure 6 of Wada shows a suction muffler with walls of differing thicknesses. (See near 23i, 23d) Wada also shows a casing produced by combining at least two parts separated and divided. In figure 6, because the two plates overlap each other in the upper corner, the plate thickness is considered greater.

In re claim 12 Wada et al teach that the casing of the suction muffler has a **suction muffler body (23a,23b)** and a **suction muffler cover (23c)**.Wada et al ,however are silent regarding the bonding portion between muffler body and the muffler cover being either having low foaming magnification or it is not foam molded at all. But Wada et al in **column 5,lines 39-42** clearly teach that such bonding portion is a made by ultrasonic welding which would indicate that foaming is not a requirement .

In re claim 13 Wada et al teach the claimed invention except mentioning that the **linkage path (25)** that links the inner portion of the hermetic compressor and the sound attenuation space of the **suction muffler (23)** is formed integrally with the part of casing of the suction muffler which is farthest from the motor element. It would have been obvious to one skilled in the art at the time the invention was made to make linkage and the casing integral since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together

involves only routine skill in the art. *Howard v. Detroit Stove Works,* 150 U.S. 164 (1993). Also please note that it has been held that the term "integral" is sufficiently broad to embrace constructions united by such means as fastening and welding. ***In re Hotte, 177 USPQ 326, 328 (CCPA 1973).***

In re claim 14 Wada et al teach that the a part of the casing of the **suction muffler (23)** is interposed between a **cylinder head (13)** and a **valve plate (12)** which constitute the compression element **(clearly shown in figure 6).** Wada et al is silent that the interposed part has low foaming magnification or it is not foam molded at all. But as discussed in claim 6 above such choice merely depends on design choice and the required attenuation level.

12. Claims 10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wada et al in view of Haseyama or Miller or Arai as applied to claim 1 further in view of Harper et al (5496156).

13. In re claim 10 Wada et al teach a suction muffler that includes a sound attenuation space formed inside the **casing (23a,23b)** ,a first linkage path to link the compression element and the sound attenuation space **(clearly shown in figure 2)** ,and a **second linkage path (25;figure 2)** to link an inner portion of the hermetic vessel and the sound attenuation space. Wada et al in view of Haseyama or Miller or Arai ,however fail to disclose the following limitation which is taught by Harper et al :

A wall of the casing **(114)** ,in **figure 1 and 3** ,which is close to at least one of the motor element ,the **compression element (42)** an open end within the sound attenuation

space of the first linkage path, and an open end within the sound attenuation space of the second linkage path is designed to have at least one of a configuration that is thicker than the other walls of the casing **(clearly shown in figure 3)**. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the muffler of Wada et al and Haseyama or Miller or Arai by providing thicker muffler wall crossection near the compression element as taught by Harper et al in order to increase flexural rigidity since the region is located to the valve plate area and prone to pulsation loading as the valve opens and closes. In regards to the limitation "a configuration that is higher than in foaming magnification", as discussed in claim 6 above choosing a foaming magnification depends on the specific design environment one skilled in the art at the time the invention was made would choose a specific foaming magnification in the muffler compressor connection to withstand different loads while achieving acceptable reduction in weight of the muffler casing.

In re claim 15 Wada et al teach that the a part of the casing of the **suction muffler (23)** is interposed between a **cylinder head (13)** and a **valve plate (12)** which constitute the compression element **(clearly shown in figure 6);**and the thickness of the interposed part **(114; figure 3)** is thicker than the other portions.

14. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wada et al in view of Haseyama or Miller or Arai as applied to claim 1 further in view of Nishihara et al (WO02/090774 which is functionally equivalent to US patent 7134847).

15. In re claim 11 Wada et al teach that lubricating **oil (28)** is stored in the hermetic vessel **(column 5,lines 12-19) ,casing (23b;figure 6)** of the suction muffler to which

lubricating oil is supplied **(via capillary tube 29)** . Wada et al ,however fail to disclose the following limitation which is taught by Nishihara et al :

**Wall (29)** of casing of suction muffler to which lubricating oil is supplied has at least one of a configuration that is thicker than the other walls of the casing **(column 5,lines 58-62).** In regards to the limitation "a configuration that is higher than in foaming magnification", please refer to claims 6 and 10 above.

16. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wada et al in view of Haseyama or Miller or Arai as applied to claim 1 further in view of Yoshimura et al (6152703).

17. In re claim 16 and 17 Wada et al in view of Haseyama or Miller or Arai disclosed the claimed invention but fail to specifically disclose that the motor is inverter driven or applicant's claimed operating frequecies.However, Yoshimura et al,in figures 57 and 58 show an a motor (211) driven by an inverter (212) the rotation number is at least 20r/sec (figure 58) which is definitely less than a commercial power supply frequency. It would have been obvious to one skilled in the art at the time the invention was made to modify the compressor of Wada et al with the inverter of Yoshimura et al in order to regulate the capacity of the compressor and also reduce electric power consumption.

18. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wada et al in view of Haseyama or Miller or Arai as applied to claim 1 further in view of Nozaki et al (7033150).

19. In re claim 18 Wada et in view of Haseyama or Miller or Arai disclose the claimed invention except mentioning that the refrigerant is R600a type. But Nozaki et al teach a

similar hermetic compressor in which the refrigerant being used is R600a.It would have been obvious to one skilled in the art at the time the invention was made to choose R600a as taught by Nozaki et al simply as a matter of design choice since it is a highly pure ingredient refrigerant.

***Response to Arguments***

20. Applicant's arguments, see pages 3-5, filed 03/02/09, with respect to the rejection(s) of claim(s) 1-19 under 35 U.S.C. 102(b) and 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Inform Industries European Edition 2, 2009 (IIEE) as evidenced by Adcock (4446853). And also Wada et al in view of Haseyama and Miller or Arai.

***Conclusion***

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amene S. Bayou whose telephone number is 571-270-3214. The examiner can normally be reached on Monday-Thursday,9:00 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on 571-272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For

more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free)? If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
Supervisory Patent Examiner, Art Unit 3746